BLACK

2 Megapixel HDcctv Indoor/Outdoor IR Dome Camera User Manual

Products: BLK-HDM1IR, BLK-HDM2IR

BLK-HDM1IR (left) and BLK-HDM2IR (right)

Please read this manual before using your camera, and always follow the instructions for safety and proper use. Save this manual for future reference.

WARNING

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

CAUTION

To prevent electric shock and risk of fire hazards:
Use a power source that is within specification only.
Do NOT expose this appliance to rain or moisture.

REGULATORY NOTICE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and use in accordance with the instructions, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his own expense.

LEGAL NOTICE

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The recording, transmission, or broadcast of any person's voice without their consent or a court order is strictly prohibited by law.

Observint makes no representations concerning the legality of certain product applications such as the making, transmission, or recording of video and/or audio signals of others without their knowledge and/or consent. We encourage you to check and comply with all applicable local, state, and federal laws and regulations before engaging in any form of surveillance or any transmission of radio frequencies.

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11000 N. Mopac Expressway, Building 300, Austin, TX 78759
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Precautions

Do not install the camera in extreme temperature conditions. Use the camera in environments where temperature is between 14 °F and 122 °F. Ensure adequate ventilation.

Do not install or use the camera in an environment where the humidity is high. It can degrade the image quality.

Do not install the camera under unstable lighting conditions. Severe lighting changes or flicker can cause the camera to work improperly.

Never use the camera close to a gas or oil leak. These chemicals can damage the camera.

Do not drop the camera or subject it to physical shocks. These can cause malfunctions to occur.

Never point the camera at intense light. Smear or blooming may occur, and it can damage the CCD.

Do not expose an indoor camera to rain or spill liquids on it. If it gets wet, wipe it dry immediately. Liquids can contain minerals that corrode electronic components.

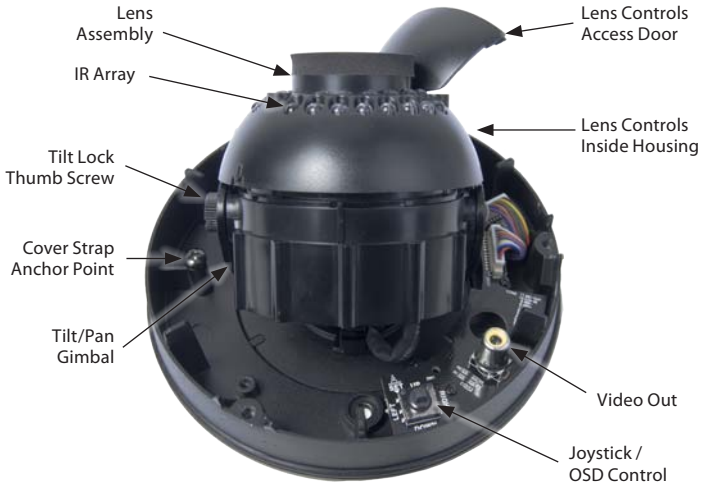
Check the power source to ensure that it is within specifications before connecting it to the camera.

SECTION 1
Introduction

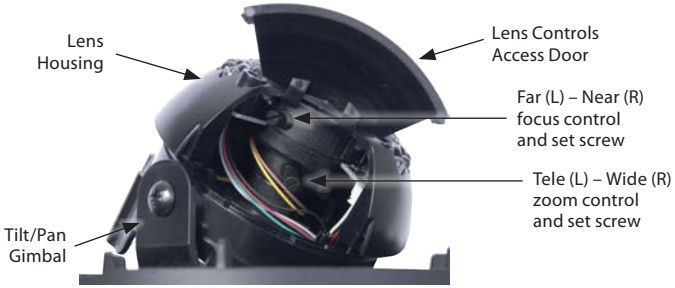
These high definition indoor/outdoor IR dome cameras feature a Panasonic CMOS sensor with a 2 – 10 mm lens, wide dynamic range, dual voltage range support (24 Vac, 12 Vdc), and on-screen display (OSD) for control and setup. These cameras are available with either a durable plastic or vandalproof outdoor enclosure.

Features

- Wall or ceiling mounting through 3-axis camera bracket
- IP67 rated (outdoor camera)
- Safety strap keeps dome cover attached while making adjustments
- 1/3" Panasonic CMOS sensor
- Full HD resolution
- Day or day/night operation
- Vari-focal lens 2~10 mm
- Wide dynamic range (WDR)
- Digital noise reduction (DNR, 2D + 3D)
- Privacy mask function
- Defog function
- On screen display (OSD)
- Intelligent motion detection
- HD-SDI/CVBS Output
- Multi Protocol (PELCO-D, PELCO-P)



Internal Components



Lens controls

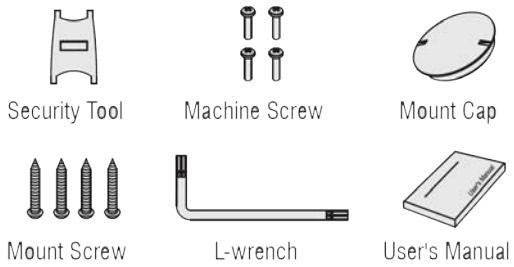
1.1 BLK-HDM2IR camera

BLK-HDM2IR cameras include a rugged die-cast aluminum vandalproof enclosure and are IP67 rated. They are flush surface mountable using the mount adaptor box supplied.

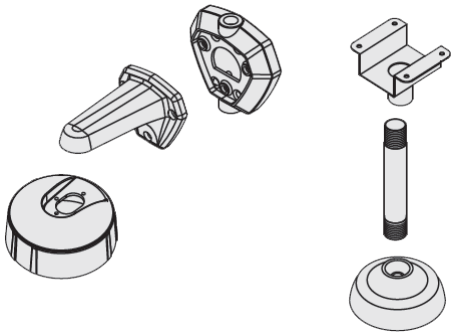
1.1.1 What's in the box

Your camera includes the following:

- Security tool
- Machine screws (4)
- Mounting cap
- Mounting screws (4)
- L-wrench
- User manual
- Dome bracket (optional)



What's in the box



Optional dome bracket for wall and ceiling mounting

1.1.2 What you need

To install the camera you will need:

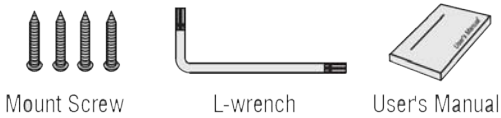
- 12 Vdc 1 A or 24 Vac 1 A power source
- Tools for mounting the camera

1.2 BLK-HDM1IR camera

1.2.1 What's in the box

Your camera includes the following:

- Mounting screws (4)
- L-wrench
- User manual
- Dome bracket (optional)



What's in the box

Optional dome bracket

1.2.2 What you need

To install the camera you will need:

- 12 Vdc 1 A or 24 Vac 1 A power source
- Tools for mounting the camera

SECTION 2
Installation

2.1 General Guidelines

- **Outdoor installations**: Ensure the cover is secured to the dome base with the machine screws provided and rubber seals.

- **Dome/window care**: Handle the dome carefully to prevent scratching. If a scratch appears over the lens, adjust the dome window to move the scratch away from the lens.

CAUTION

Keep dome cover and camera lens clean. To avoid smearing, do not expose the camera lens to a strong light source such as the sun or spot lights.

- **Monitor impedance**: Set the monitor impedance switch to 75 Ω.
- **Power supply**: To avoid fire or shock hazard, use only a UL listed power supply.

2.2 Camera drop cable

Drop cable connectors / wires definitions:

- **Power**: red sleeved connector; 12 Vdc / 24 Vac non-polarized
- **HD-SDI**: BNC connector
- Pigtail wires:
  - **RS-485(+)**: blue wire
  - **RS-485(-)**: green wire

Camera drop cable

2.3 BLK-HDM2IR camera mounting

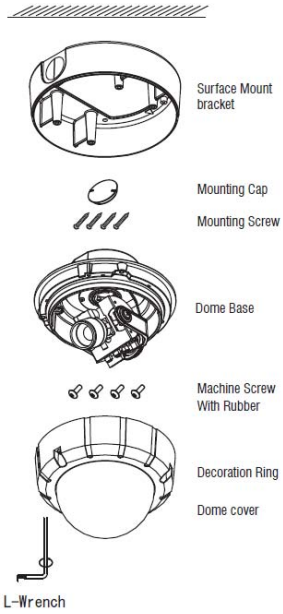
The camera can be installed on a junction box or directly to a wall or ceiling.

1. Attach the surface mount bracket to the ceiling or wall using four (4) mounting screws.

2. Connect the dome base to the surface mount bracket using the screws with rubber rings provided.

3. Route the power and video cables to the camera location and attach them to the camera drop cable (see **General guidelines** above).

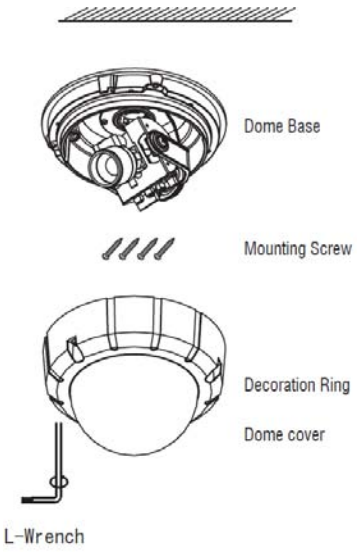
4. Attach the dome base to the surface mount bracket using the four machine screws provided.



2.4 BLK-HDM1IR camera mounting

1. Connect the dome base to the mounting surface using four (4) screws.

2. Route the power and video cables to the camera location and attach them to the camera drop cable (see **General guidelines** above).



2.5 Camera adjustments

1. Attach a video setup monitor to the yellow CVBS (yellow) connector on the drop cable, the RCA connector on the camera PC board, or setup a remote monitor for viewing video from the camera.

2. Power on the camera and video monitor.

3. While observing video from the camera, adjust the gimbal pan/tilt/horizon to aim the camera in the preferred direction.

Pan adjustment (rotate gimbal)

Tilt adjustment

After adjusting the tilt, tighten the tilt/lock thumb screw.

Horizon adjustment

4. Adjust the image with the focus and zoom levers. See the photo "Lens controls" on page 2. After setting the focus and zoom tighten the focus and zoom set screws until snug.

5. Configure your camera using the software menus in the OSD. See **Software Setup** in the following section of this manual.

6. Place the dome cover over the base and adjust the dome window. Tighten the captive screws that secure the cover to the base.

7. Clean the camera dome with an approved glass cleaning solution and a lint free cloth.

   — Dust can be removed from the unit by wiping it with a soft damp cloth. To remove stains, gently rub the surface with a soft cloth moistened with a mild detergent solution, then rinse and dry it with a soft cloth.
   — Remove all foreign particles, such as plastic or rubber materials, attached to the camera housing. These may cause damage to the surface over time.

CAUTION

Do not use benzene, thinner or other chemical products on the camera assembly; these may dissolve the paint and promote damage of the surfaces. Before using any chemical product, read the accompanying instructions carefully.

SECTION 3
Software Setup

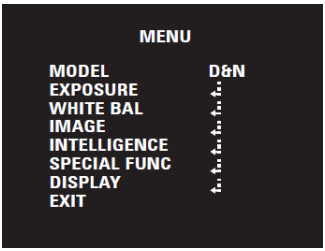
Use the SETUP joy stick on the OSD control panel to navigate through the menu system. Press the joy stick down (toward the PC board) to enter the SETUP menu or select an entry, rock the stick up or down to highlight an item in the list, and left or right display the option you want to select.

3.1 Menu operation

Navigation through the menu system is performed with the joystick located inside the camera dome cover assembly. You can rock the joystick to the right, left, up , or down, and press the joystick down (Set functions).

- **Up button** : Moves the cursor upwards in the menu. Use this button to select an item or adjust the parameters.
- **Down button** : Moves the cursor downwards in the menu. Use this button to select an item or adjust the parameters.
- **Right button** : Moves the cursor to the right in the menu. Use this button to select or adjust the parameters of the selected item. The parameter changes each time this button is pressed.
- **Left button** : Moves the cursor to the left in the menu. Use this button to select or adjust the parameters of the selected item. The parameter changes each time this button is pressed.
- **Set button** : Executes selections and displays a submenu for an item with the mark.

The main MENU consists of a list of sub-menus or displays the option selected for a camera function. When sub-menus are available, the ↵ symbol is shown.

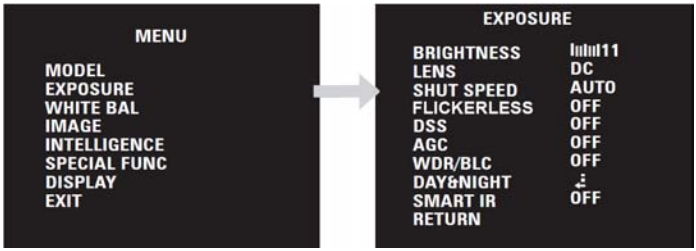


3.2 MODEL

MODEL: Select model type: D&N (day and night) / COLOR / IR SMART / IR CDS

3.3 EXPOSURE

To open the EXPOSURE menu, **rock** the joystick down (or up) to highlight EXPOSURE, then **press** the joystick down (set, select).



- **BRIGHTNESS**: Adjust brightness level: 0 (dark) ~ 20 (bright) steps
- **LENS**: DC / MANUAL
- **SHUT SPEED**: Can be set in AUTO or MANUAL: AUTO / 1/30 (25), 1/60 (50), 1/120 (100), 1/240, 1/500, 1/1000, 1/2000, 1/4000, 1/8000, 1/16000,1/30000, 1/60000 s
- **FLICKERLESS**: On / Off
- **DSS**: Select maximum DSS (Digital Slow Shutter): OFF / x2, x3, x4
- **AGC**: Select Auto Gain Control OFF / ON
- **WDR/BLC**: Select WDR (Wide Dynamic Range) or BLC (Back Light Compensation). NOTE: When WDR is ON, ACE and DEFOG function will not turn on.
  - WEIGHT : Adjust WDR level 0 ~ 3
- **BLC**
  - AREA : Control BLC area according to light condition.
  - POS-X : Adjust the window X-Axis position
  - POS-Y : Adjust the window Y-Axis position

- SIZ-X : Adjust the window X-Axis size
- SIZ-Y : Adjust the window Y-Axis size

- **DAY&NIGHT** : Select Day&Night. The MODEL mode determines content of the DAY&NIGHT submenu.

D&N Model

- Mode: AUTO / DAY / NIGHT / EXT
- Delay : 0 ~ 255 second
- BURST : OFF / ON
- THRS : LOW / MIDDLE / HIGH. Select Day&Night change level. Higher level make the night mode changed in lower illumination.
- GAP : LOW / MIDDLE / HIGH: Select Day to Night mode change and Night to Day mode change.

COLOR Model

- AUTO / DAY / NIGHT / EXT
- Delay : 0 ~ 255 second
- BURST : OFF / ON
- THRS : LOW / MIDDLE / HIGH
- GAP : LOW / MIDDLE / HIGH

IR SMART Model

- AUTO
  - Delay : ---
  - BURST : OFF / ON
  - THRS : ---
  - GAP : ---

IR SMART OFF

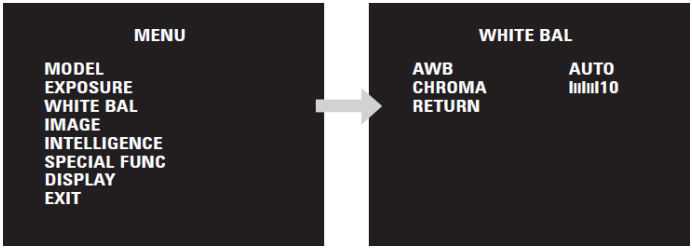
IR SMART ON

IR CDS Model

- AUTO / DAY / NIGHT
  - Delay : ---
  - BURST : OFF / ON
  - THRS : ---
  - GAP : ---

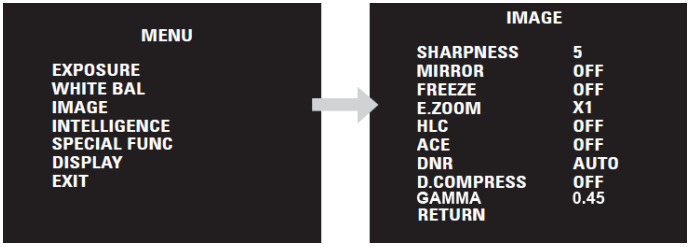
- **SMART IR** : OFF / ON. **NOTE**: SMART IR function only works with IR Smart Model.
  - THRS : Set-up Smart IR turns on point. When you level up the value, Smart IR turns on in a low light condition.
  - AREA : Set up areas to control Smart IR function. When BLC mode is on, Smart IR area is following BLC area.
  - POS-X : Adjust the window X-Axis position
  - POS-Y : Adjust the window Y-Axis position
  - SIZ-X : Adjust the window X-Axis size
  - SIZ-Y : Adjust the window Y-Axis size
  - IR COMP: Compensate when IR fluctuation occurs. Objects in front of camera must be at least 1 foot away from camera.

3.4 WHITE BALANCE



- **AWB** : Select WHITE BALANCE mode. AUTO / PRESET / MANUAL / INDOOR / OUTDOOR
  - AUTO : Automatically adjusts color according to the lighting.
  - PRESET : It is a fixed white balance mode that may be automatically readjusted only by pressing PRESET
  - MANUAL : You can change WB as changing “RED GAIN” and “BLUE GAIN” in manual mode.
    - RED GAIN : Adjust R gain value 0 ~ 20
    - BLUE GAIN : Adjust B gain value 0 ~ 20
  - INDOOR : Set color temperature to be Indoor light (3700 K)
  - OUTDOOR : Set color temperature to be Outdoor light (5100 K)
- **CHROMA** : Adjust CHROMA gain value 0 ~ 20 steps

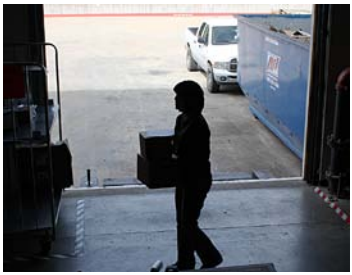
3.5 IMAGE



- **SHARPNESS** : Adjust sharpness level: 0 ~ 10 steps
- **MIRROR** : Select a flip mode: OFF / H / V / H&V
  - H : You can flip the picture horizontally on the screen
  - V : You can flip the picture vertically on the screen
  - H&V : You can flip the picture horizontally & vertically on the screen

H Mirror Off *H Mirror ON*

- **Freeze** : Select real or still mode: OFF / ON
- **E.ZOOM** : Select maximum digital zoom magnification: x1 ~ x12, x14, x15, x18, x21, x25, x32
- **HLC** : Select High Light Compensation to mask out intense light sources affecting the camera's image: OFF / ON
  - ON LEVEL : 0 ~ 20 steps. COLOR : Black, White, Yellow, Cyan, Green, Magenta, Red, Blue
- **ACE** : Select Digital WDR (Wide Dynamic Range): OFF / ON. NOTE: When ACE is On, WDR/BLC and DEFOG function can not turn on.

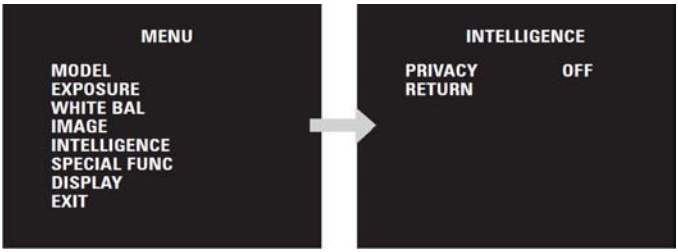


WDR Off

WDR ON

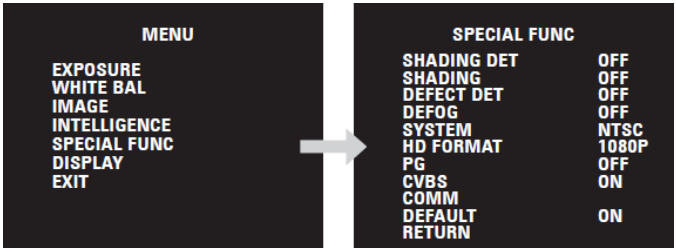
- **DNR** : Select Digital Noise Reduction: AUTO / OFF / LOW / MIDDLE / HIGH
- **D.COMPRESS** : Use this function only with IP camera. Set to OFF.
- **GAMMA**: Set gamma level for best display

3.6 INTELLIGENCE



- **PRIVACY** : Hide an area you want to hide on the screen: OFF / ON
  - MASK# : Select mask area number (0 ~ 31)
  - MODE : Set-up masking areas. (OFF / ON)
  - X-POS : Adjust the mask X-Axis position
  - Y-POS : Adjust the mask Y-Axis position
  - X-SIZ : Adjust the mask X-Axis size
  - Y-SIZ : Adjust the mask Y-Axis size
  - COLOR : Cyan, Green, Magenta, Red, Blue, Black, White, Yellow
  - TRANS : Select mask transparency level (0 ~ 4)

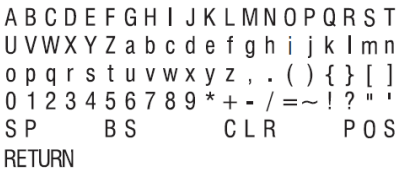
3.7 SPECIAL FUNCTION



- **SHADING DET** : Sets the shading calibration that the lens will perform. Only occurs when the entire screen is viewed in white light.(OFF / ON)
- **SHADING** : Select Lens shading compensation. (OFF / ON)
- **DEFECT DET** : Compensates for bad pixels that my occur. Occurs when the whole screen is in full black or if there is bad pixelation and it changes the THRS values until the screen is fixed. (OFF / ON)
- **DEFOG** : Carry out defog function: OFF / ON
  - LEVEL : adjust amount of fog on display screen: 0 ~ 10. NOTE: When DEFOG is On, ACE and WDR/BLC function can not turn on.
- **SYSTEM** : Select NTSC or PAL. (NTSC / PAL)
- **HD FORMAT** : Select Digital output 1080P or 720P. (1080P / 720P)
- **PG** : Select Color pattern generator (OFF / ON)
- **CVBS** : Select Composite signal (OFF / ON)
- **COMM** : Set up the camera ID, baud rate, protocol
  - ID : Select the camera ID: 1 ~ 255
  - BAUD RATE : Select serial communication speed: 2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200 bps
  - PROTOCOL : Select operating protocol: PELCO-D / PELCO-P / UPDATE
- **DEFAULT** : All the settings will be restored to the factory default.

3.8 DISPLAY

- **DISP SEL** : Select display item.
  - ID : OFF / ON
  - TITLE : OFF / ON
  - EZOOM : OFF / ON
- **SET TITLE** : Select camera title menu (Text edit)



Set Title character set (on-screen)

SECTION 4
Specifications

Table 1. Component Specifications

Component	Value
Image Sensor	1/3" Panasonic CMOS
Total Pixels	2010 (*h*) x 1108 (*v*) = 2,227,080 (pixel)
Active Pixels	1944 (*h*) x 1092 (*v*) = 2,122,848 (pixel)
Scanning system	Progressive
Resolution	Digital : 1920 x 1080 (1080p / 30 fps), 1280 x 720 (720p / 60 fps) Analog : 700 TVL
Min. Illumination	Color : 1.0 lux , B/W : 0.5 lux Color DSS : 0.002 lux , BW DSS : 0.001 lux
Video output	HD-SDI Analog : NTSC, PAL(without WDR)
S/N ratio	> 50 dB (AGC off)
Function	
Model	D&N / COLOR / IR SMART / IR CDS
Exposure	
BRIGHTNESS	0 ~ 20 steps
LENS	DC / Manual
SHUT SPEED	Auto / Manual (1/30 (1/25) ~ 1/60000)
DSS	Off / x2 / x3 / x4
AGC	Off / On
WDR/BLC	Off / WDR / BLC
DAY&NIGHT	Auto / Day / Night / Ext
SMART IR	Off / On
White Bal	Auto / Preset / Manual / Indoor / Outdoor
Image	
SHARPNESS	0 ~ 10 steps
MIRROR	Off / H / V / H&V
FREEZE	Off / On
E.ZOOM	x1 ~ x32
HLC	Off / On
ACE	Off / On

SECTION 4: SPECIFICATIONS

Component	Value
DNR	Off / Low / Middle / High / Auto
D.COMPRESS	OFF / ON
INTELLIGENCE	
PRIVACY	Off / On (32 points)
SPECIAL FUNC	
SHADING DET	Off / On
SHADING	Off / On
DEFECT DET	Off / On
DEFOG	Off / On
SYSTEM	NTSC / PAL
HD FORMAT	1080P / 720P
PG	Off / On
CVBS	Off / On
COMM	ID (1 ~ 255) Baud rate (2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200)
DEFAULT	ON / DONE
Language	English
OSD Text	0 ~ 9 , A ~ Z , a ~ z
Electrical	
Power Source	12 Vdc TYPE : 12 Vdc ± 10 % DUAL TYPE : 12 Vdc ± 10 % , 24 Vac ± 10 %
Power Consumption	12 Vdc TYPE : 250 mA DUAL TYPE : 350 mA (12 Vdc ± 10 %) , 250 mA (24 Vac ± 10 %)
IR	27 each (IR Type)
General	
Power Input	DC JACK
Video Output (HD-SDI)	BNC connector
Operating Temperature	+14 °F ~ +122 °F (-10 °C ~ +50 °C), Humidity : 0 % RH ~ 80 % RH
Storage Temperature	-4 °F ~ +140 °F (-20 °C ~ +60 °C), Humidity : 0 % RH ~ 90 % RH

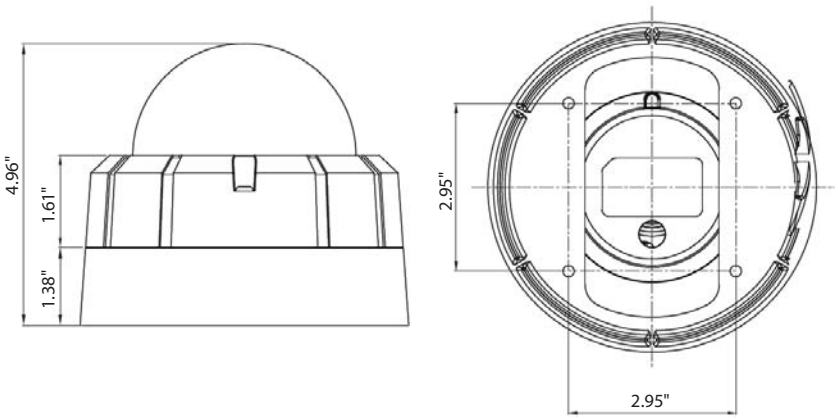
APPENDIX A
Troubleshooting

If you experience problems you cannot resolve, please contact your distributor.

Problem	Solution
Nothing appears on the screen.	- Check the power connections. - Check the video cable connections. - Ensure that the lens mode is set to DC (VIDEO) when using a VIDEO (DC) lens.
The video image is not clear.	- Clean the lens with a soft, clean cloth. - Adjust the monitor screen for room lighting conditions. Move the camera if necessary.
The screen is dark.	- Adjust the contrast feature of the monitor. - If you have an intermediate device, set the 75Ω /Hi-Z properly, and check the terminals.
The MOTION DETECTION function is not working	- Is "MOTION DETECTION" mode turned on? - Is the MD Sensitivity set too low? Increase the sensitivity. - Check the setting of the MD AREA.
The WDR function is not working	- Is the WDR level too low? - Is the AE Mode set to MANUAL? WDR is disabled in MANUAL exposure mode.
Colors are not quite right.	- Is the camera facing directly into sunlight or fluorescent light? - Is the auto-iris lens is being used? - Check the connection of the lens connector cable.
The Day&Night function doesn't work.	- Is the AGC (EXPOSURE menu) set to OFF? The Auto Day&Night Function doesn't work if the AGC is OFF. - Check the D <—> N level.

APPENDIX B
Camera Dimensions

Camera with vandalproof housing



Camera with plastic housing